

On The Processing of Log Files for Monitoring Antenna Health

N. Habana, L. Petrov

abstract

In order to improve the quality of geodetic results, we have developed an infrastructure for timely processing of telemetry from IVS observing stations. We check every hour for new log files with telemetry from both VLBI observing sessions, single dish experiments, and stow-in data collection and automatically process them. The telemetry data we use is the system temperature, phase calibration phases and amplitudes, system equivalent flux density, and the differences between formatter clock and GPS clock. For the system temperature and phase calibration, processing includes filtering out outliers and computing averages and rms of the scatter in each scan. Furthermore, for the phase calibration we also compute the group delay and detect spurious signals. Cleaned and post-processed telemetry is archived. Our process detects abnormalities, such as, anomalously high system temperature, unstable phase calibration phases, jumps in the GPS and formatter clock differences, and others. With our procedure, the latency of detection of station abnormalities is reduced to less than two hours. Early detection of abnormalities reduces the amount of affected data since station personnel get early alerts. We discuss our experience of running this system since 2022.

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Nlingi Habana^{1,2}, Leonid Petrov²

(1) Science Systems and Applications, Inc 10210 Greenbelt Road, Suite 600, Lanham , MD 20706, USA

(2) Geodesy and Geophysics Laboratory, NASA Goddard Space Flight Center, 8800 Greenbelt Rd, Greenbelt, MD 20771, USA

Corresponding author: n.habana@nasa.gov